# DEPARTMENT of ENVIRONMENTAL SERVICES Water Division - Watershed Management Bureau

# LAKE TROPHIC DATA

# MORPHOMETRIC:

Lake: LOON LAKE	Lake Area (ha):	45.28
Town: PLYMOUTH	Maximum depth (m):	8.8
County: Grafton	Mean depth (m):	3.9
River Basin: Merrimack	Volume (m³):	1784500
Latitude: 43°47'44" N	Relative depth:	1.2
Longitude: 71°45'12" W	Shore configuration:	1.09
Elevation (ft): 489	Areal water load (m/yr)	): 10.18
Shore length (m): 2600	Flushing rate $(yr^{-1})$ :	2.60
Watershed area (ha): 906.5	P retention coeff.:	0.55
<pre>% watershed ponded: 0.0</pre>	Lake type:	natural

BIOLOGICAL:	20 January 2000	8 July 1999
DOM. PHYTOPLANKTON (% TOTAL) #	UROGLENOPSIS 80%	MALLOMONAS 35%
#	SYNURA 15%	ASTERIONELLA 25%
#	3	CHRYSOSPHAERELLA 15%
PHYTOPLANKTON ABUNDANCE (units/mL		
CHLOROPHYLL-A (µg/L)		8.06
DOM. ZOOPLANKTON (% TOTAL) #	KERATELLA 69%	KERATELLA 24%
#	POLYARTHRA 24%	CALANOID COPEPOD 24%
#	3	
ROTIFERS/LITER	50	35
MICROCRUSTACEA/LITER	<1	27
ZOOPLANKTON ABUNDANCE (#/L)	54	94
VASCULAR PLANT ABUNDANCE		Scat/Common
SECCHI DISK TRANSPARENCY (m)		2.7
BOTTOM DISSOLVED OXYGEN (mg/L)	12.3	0.5
BACTERIA (E. coli, #/100 ml) #	1	4
#	2	
#	3	

# SUMMER THERMAL STRATIFICATION:

#### stratified

Depth of thermocline (m): 3.8 Hypolimnion volume  $(m^3)$ : 156600 Anoxic volume  $(m^3)$ : 22200

CHEMICAL:			LOON LAKE	Ε	
·	20 Janua	ary 2000	8 3	July 1999	
DEPTH (m)	3.0	6.0	2.0	5.0	7.5
pH (units)	6.4	6.3	6.8	6.3	6.0
A.N.C. (Alkalinity)		2.9	4.2	3.7	4.3
NITRATE NITROGEN	0.08	0.13	< 0.05	< 0.05	< 0.05
TOTAL KJELDAHL NITROGEN	0.16	0.17	0.30	0.30	0.30
TOTAL PHOSPHORUS	0.007	0.007	0.007	0.020	0.019
CONDUCTIVITY (µmhos/cm)	28.3	28.3	25.2	24.3	26.8
APPARENT COLOR (cpu)	19	19	17	23	33
MAGNESIUM			0.47		
CALCIUM			2.2		
SODIUM			1.7		
POTASSIUM			0.42		
CHLORIDE	< 2	< 2	< 2	< 2	< 2
SULFATE	5	5	3	3	3
TN : TP	34	43	43	15	16
CALCITE SATURATION INDEX			3.5		

All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 1999

D.O.	s.D.	PLANT	CHL	TOTAL	CLASS
3	3	2	2	10	Meso.

# COMMENTS:

- 1. Loon Lake was previously surveyed and classified in 1983 and has been a participant in VLAP since 1989. Chlorophyll has generally been in the 3 to 6 mg/m³ range with a slightly worsening trend; clarity has been relatively stable in the 3 to 5 meter range. The lake has been classified mesotrophic, ranging from low mesotrophic to high mesotrophic.
- 2. Limited depth soundings were collected. Soundings from a 1978 map were used to help construct the bathymetric map.

# FIELD DATA SHEET

LAKE: LOON LAKE DATE: 07/08/1999

TOWN: PLYMOUTH

WEATHER: Partly Cloudy, Windy

DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION		
0.1	25.7	7.9	97 %		
1.0	25.7	8.0	98 %		
2.0	25.7	8.0	98 %		
3.0	25.6	8.0	97 %		
4.0	18.2	10.6	112 %		
5.0	14.7	9.9	98 %		
6.0	10.9	3.1	28 %		
7.0	9.6	1.0	9 %		
8.0	9.3	0.5	4 %		
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SECCHI DISK (m): 2.7

**COMMENTS:** 

BOTTOM DEPTH (m): 8.8

TIME: 1200

\*Dissolved oxygen values are in mg/L

# AQUATIC PLANT SURVEY

LAK	E: LOON LAKE	TOWN: PLYMOUTH	DATE: 07/08/1999
Key PLANT N		PLANT NAME	ABUNDANCE
кеу	GENERIC	COMMON	ADONDANCE
В	Brasenia schreberi	Water shield	Scat/Common
N	Nymphaea	White water lily	Scat/Common
S	Sparganium	Bur reed	Scattered
P	Pontederia cordata	Pickerelweed	Scattered
d	Dulichium arundinaceum	Three-way sedge	Scattered
Е	Eriocaulon septangulare	Pipewort	Scattered
W	Potamogeton	Pondweed	Sparse
U	Utricularia	Bladderwort	Sparse
Н	Equisetum	Horsetail	Sparse
Y	Nuphar	Yellow water lily	Sparse
С	Cyperaceae	Non-flowering sedge	Sparse
D	Decodon verticillatus	Swamp loosestrife	Sparse
b	Scirpus	Bulrush	Sparse
е	Eleocharis	Spike rush	Sparse
		-	

OVERALL ABUNDANCE: Scat/Common

# **GENERAL OBSERVATIONS:**

- Non-flowering (sterile) thread-like bottom growth was common along the southern and western shore but is not listed above or depicted on the map.
- 2. The southern and western shore also supported most of the rooted plants listed above.